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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,667	09/17/2003	Shinsuke Toyomasu	242865US0	2484

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ALEXANDRIA, VA 22314

EXAMINER

PEZZUTO, HELEN LEE

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 04/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/663,667

Applicant(s)

TOYOMASU ET AL.

Examiner

Helen L. Pezzuto

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 7-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-19 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/28/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Election/Restrictions

1. This application contains claims 7-18 drawn to an invention nonelected with traverse in response filed on 10/19/04. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Response to Amendment

Applicant's amendment to claims 1-2 filed in the response on 1/28/05 is acknowledged. Currently, claims 1-6 and 19 are under consideration in this application.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior

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art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-6, and 19 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over GB 1066715 or Barr et al. (US-832) or Le-Khac (US-700).

GB 1066715 or its US equivalence to Barr et al. (US 3,352,832) discloses a process of producing N-substituted maleimide copolymers, suitably used as transparent optical materials. Prior art copolymers comprise N-phenyl maleimides such as N-halogen-substituted-phenyl maleimides as shown in Example 4 and N-(2-methylphenyl)maleimide (see GB-715, page 1, lines 33 to 38; page 2, line 13) as expressed in claim 3, and an α -olefin such as isobutene which clearly embrace the instant olefin unit (i) (see GB-715, page 1, lines 45-61; page 4, Example 4). Prior art further teaches fabricating the resulting copolymer into optical articles such as sheets, thus, fall within the scope of the optical film, and optical utility expressed in claims 4-6, and 19 (see GB-715, page 3, lines 99-129).

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US 4,605,700 to Le-Khac discloses a miscible polymer composition comprising a N-aryl substituted maleimide/C₂-C₄ α -olefin copolymer and an acrylonitrile copolymer. The instant copolymer having the recited weight average molecular weight is immediately envisaged in prior art N-aryl substituted maleimide/ α -olefin copolymer (col. 2, lines 29-47). US-700 further exemplified injection molding the resulting polymer into test specimen (col. 5, Example 5), and hence, encompasses the instant optical film expressed in the present claims.

Prior art discussed are silent regarding the instant recited negative birefringence property. GB-715 and US-832 are further silent regarding the molecular weight of the resulting polymer. The examiner is of the position that these properties, though not explicitly shown by the references, is considered inherent in the prior art copolymer because identical N-phenyl substituted maleimide and α -olefin monomeric units are employed, and the further suggestion of producing molded optical materials in the references. Accordingly, the burden is placed upon the applicant to provide clear evidence that the respective copolymers so in fact differ. In any event, in light of the

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clear suggestion of using the copolymer in the manufacturing of molded articles, one skilled in the art would envisage the recited molecular weight and negative birefringence under the general conditions of prior art, motivated by the reasonable expectation of success, absent a showing of unexpected results.

Claim Rejections - 35 USC § 103

5. Claims 1-6, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP-05-117334 in view of Harris et al.

(US-916).

JP-334 discloses a low birefringence optical copolymer derived from 30-98 mol% of a N-phenyl substituted maleimide and/or N-alkylmaleimide, and 70-2 mol% of an α -olefin. Suitable N-phenyl substituted maleimides include N-(2-methylphenyl) maleimide, N-(2,6-diethylphenyl) maleimide, and N-(2,6-diisopropylphenyl) maleimide as expressed in claim 3 (page 3, col. 3, [0010]). Copolymers derived from N-(2,6-diethylphenyl) maleimide and isobutene having the instant molecular weight was exemplified. Prior art teaches the instant optical copolymer having low birefringence, but does not expressively exemplify negative birefringence as presently claimed. Prior art does, however, teach

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controlling the negative birefringence by steric manipulation of the phenyl moiety on the maleimide unit (page 4, col. 5, [0022] to col. 6, [0026]). Furthermore, US 5,344,916 specifically teaches the desirability to manufacture a negative birefringence film for utility in liquid crystal display by controlling the rigidity, linearity, and symmetry of analogous polyimide polymer backbone. Accordingly, it would have been obvious to one skilled in the art to produce the optical copolymer disclosed in JP-334, having negative birefringence property as taught in US-916, motivated by the reasonable expectation of success in the production of liquid crystal film, as in applicants' invention.

Response to Arguments

Applicant's amendment and response filed on 1/28/05 have been fully considered, but are not found to be persuasive. Firstly, applicants urged that GB-715 and US-700 failed to disclose a method, disclosed in applicant's specification, by which negative birefringence could be achieved. This is not found to be compelling because applicant's claims are directed to a copolymer product with utility as optical material, not to a process of manufacturing. The method upon which applicant relies are

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not recited in the rejected claims. Applicant's product by process claims are currently withdrawn as directed to non-elected invention as set forth in the previous restriction requirement. It is well known that while the claims are interpreted in light of the specification, limitations from the specification are not read into the claims.

Furthermore, nothing on this record shows criticality for the alleged method in producing optical material having negative birefringence (i.e. side-by-side comparative showing has not been made of record). Secondly, applicant urges a lack of disclosure in prior art regarding the transparency of the copolymer. The examiner disagrees as GB-715 specifically teaches transparent, colorless copolymer films having strength and optical clarity (page 1, lines 20-27; page 3, lines 99-129; page 4, Example 4). Regarding JP-334, the examiner is of the position that the newly amended "consisting essentially of" does not preclude prior art additional N-alkyl substituted maleimide, because applicant has not clearly show on record that the inclusion of N-alkyl substituted maleimide would affect the basic novel characteristic of the claimed optical copolymer. JP-334 clearly teaches control of negative birefringence by steric manipulation of the benzene moiety of the maleimide

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recurring unit, in the context of producing optical copolymers having low birefringence. The control of negative birefringence is further supported in US-916, wherein analogous rigid ring-containing polymeric systems are taught to have optical utility as presently claims.

Accordingly, the examiner's position is maintained.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

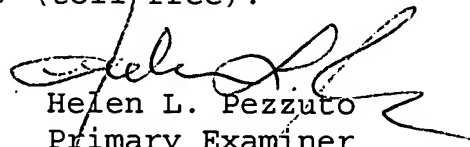
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen L. Pezzuto whose telephone number is (571) 272-1108. The examiner can normally be reached on 8 AM to 4 PM, Monday thru Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Helen L. Pezzuto
Primary Examiner
Art Unit 1713

hlp